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Change Request #:	337
Assigned OGC Document #:	13-127
Name:	*Thomas H. Kolbe
Organization:	*Chair of Geoinformatics, Technische Universität München
Email:	*thomas.kolbe@tum.de
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If this is a revision of a previous submission and you have a Change Request Number, then check here: ☐ Enter the CR number here: Enter the Revision Number that you are revising here:	
Title: ?	* [CityGML SWG] Dynamic Properties; Improved Support for Simulations
Source: ?	*Technische Universität München, SIG 3D
Work item code: ?	
Category: ?	* B (Addition of feature)
Reason for change: ?	* On the one hand CityGML is a very useful and important source of information for different types of simulations, and on the other hand the results of simulations can be fed back to the original CityGML data for thematic enrichment and data fusion. However, in most simulations time plays an important role, i.e. dynamic / time-varying feature properties (spatial and thematic, e.g. electrical energy demand or production potential for a building along the course of the day / week / year), which are not yet supported in CityGML. In order to allow for tighter coupling of semantic 3D city models and simulations we suggest the following changes.

Summary of change: ⓘ	* The CityGML feature representation should be extended in a way to support variations of individual feature properties and associations over time. This would allow the representation of dynamic features where spatial or thematic properties have different values during different time periods. The variations of spatial properties comprise the change of a feature's geometry, both in respect to the shape and to the location (moving objects). Variations of thematic attributes may express changes of physical quantities like energy demands, mean temperature, solar irradiation, or e.g. the change of the real property value of a building or the change of ownership over time. In its simplest form the different attribute values of a property should be given in tabulated form where the attribute values and the corresponding (absolute) time periods are listed. However, in order to express periodical variations it should be possible to specify values for relative time periods and to combine them to variation patterns. For example, buildings have similar energy demand curves on weekdays and different curves on the days of the weekend. Further consideration may include the representation of functional dependencies on time (e.g. variation of sea surface level based on tidal hub), optionally including the function or formula. It should be examined, if GML Dynamic Features can be used for the realisation of the above mentioned functionalities. Furthermore, we suggest discussing the concept with the Moving Features SWG and SWE DWG.
Consequences if not approved: ⓘ	If not approved, CityGML could only provide static input data for simulations, time-varying result data could not be integrated into city models.
Clauses affected: ⓘ	* Several chapters
Additional Documents affected: ⓘ	
Supporting Documentation: ⓘ	
Comments: ⓘ	
Status: ⓘ	Assigned
Assigned To: ⓘ	CityGML SWG
Disposition: ⓘ	Referred